UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Science Center
166 Water Street
Woods Hole, MA 02543-1026

18 April 2007

CRUISE RESULTS

NOAA Ship ALBATROSS IV
Cruise No. AL 07-02 (Parts I-II)
Winter Bottom Trawl Survey

CRUISE PERIOD AND AREA

The cruise period was from 6 February – 2 March 2007. The cruise was conducted in two parts: Part I was from 6 – 15 February and Part II was from 20 February – 2 March. The area of operations was from Cape Hatteras to the eastern portion of Georges Bank. Station locations are shown in Figure 1.

OBJECTIVES

The objectives of the cruise were to: (1) determine the seasonal distribution, relative abundance, and biodiversity of fish and invertebrate species found on the continental shelf; (2) collect biological samples for age determinations and growth studies, fecundity, maturity, and feeding ecology; (3) collect hydrographic and meteorological data; (4) collect samples of ichthyoplankton and zooplankton for relative abundance and distribution studies; (5) collect data and samples for cooperative researchers and programs; and (6) conduct a hydroacoustic survey between stations.

METHODS

Operations and gear used during Parts I-II conformed with the Cruise Instructions for the Winter Bottom Trawl Survey dated 15 November 2006, Addendum 1 dated 29 January 2007; and Addendum 2 dated 9 February 2007 with the following exceptions: Part I left one day late and returned one day early due to poor weather conditions.

A 30-minute tow was made at each station with a Northeast Fisheries Science Center (NEFSC) standard 36 Yankee “flatfish” net rigged with a rubber disc covered chain sweep, 11 floats, and 55 meter ground cables. NEFSC standardized 450 kilogram (kg) polyvalent trawl doors rigged with chain backstraps were used. The trawl was fished at a scope of 4:1 in depths between 18 and 27 m, 3:1 in depths between 28 and 183 m deep, and 2.5:1 in depths of 184 m and greater. Towing speed was maintained at approximately 3.8 knots using DGPS instrumentation. Direction of the tow was generally toward the next station. Throughout the cruise, a hydroacoustic survey was conducted during transit between bottom trawl stations using the Simrad EK-500 system.

After each tow, the catch was sorted by species and weighed to the nearest 0.01 kg using motion-

compensated digital scales. Representative length frequencies were collected for all species caught. All catch and biological data were recorded using shipboard automated data entry systems. The Fisheries Scientific Computing System (FSCS) was used to record all biological data. This system uses digital scales, electronic measuring boards, touch screen displays and barcode scanners to record data on deck, and archives the data on the ship's computer network.

Sampled fish were assigned individual identification numbers, measured, weighed to the nearest 0.001 kilogram, and further sampled for age and growth and feeding ecology studies. Bony fish were measured to the nearest centimeter to the end of the central caudal ray; biological samples were collected concurrently with measuring operations. Sharks and skates were measured to the end of the caudal fin (total length). Rays were measured for disk width. Lobsters were measured in millimeters from the posterior edge of the eye socket to the end of the carapace; the presence or absence of a V-notch was also noted. Crabs were measured across the carapace width in centimeters. Shell height was measured in centimeters for selected bivalves. Additional collections were obtained for various scientists (Table 2). The remainder of the catch (miscellaneous invertebrates, shells, substrate, etc) was described by volume.

Surface temperatures were measured using the hull-mounted temperature sensor at a depth of 3 meters. Temperature and conductivity profiles were recorded at each station using a conductivity, temperature, and depth (CTD) instrument. A bottom salinity sample was obtained twice each day to calibrate the CTD. Water samples were also taken for fluorometer calibrations.

Samples of fish eggs and larvae were collected at selected stations. Plankton sampling gear consisted of a 61 cm bongo frame fitted with 0.333 mm mesh nets. Digital flow meters were suspended within the mouths of the bongo frame to estimate water volume filtered. The net was towed at 2.8-3.8 kilometers/hour (1.5-2.0 knots). A CTD was deployed at each plankton station.

RESULTS

The survey sampled at 139 stations with 71 and 68 stations completed on Parts I and II respectively.

Standard plankton tows were made at 55 stations. Bottom temperatures were collected at all stations using the CTD system. Bottom water samples for CTD calibration were taken at 27 stations.

Tables 1 and 2 list the major samples collected for various studies.

DISPOSITION OF SAMPLES AND DATA

Age and growth samples, feeding ecology data and samples, maturity data, trawl catch data, and hydrographic data will be analyzed at the NEFSC Woods Hole, Massachusetts Laboratory. The various collections were forwarded to the individuals listed in Table 2. Resulting data will be audited, edited, and loaded into the NEFSC trawl survey database.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFSC, Woods Hole, MA
Larry Brady, Chief Scientist[2]
Peter Chase, Chief Scientist[1]
Robert Alexander[2]
William Duffy[1]
John Galbraith[1]
Nathan Keith[1]
Kevin McIntosh[2]
David Mountain[2]
Phil Politis[1]
Stacy Rowe[1]
Yvonna Rowinski[1]

National Marine Fisheries Service, NEFSC, Narragansett, RI
Jonathan Hare[1]

National Marine Fisheries Service, NEFSC, Sandy Hook, NJ
John Rosendale[2]
Shayla Williams[2]

Contractors

Heath Cook[2]	Integrated Statistics, Woods Hole, MA
Jakub Kircun[1]	Integrated Statistics, Woods Hole, MA
Lara Jarvis[1,2]	Integrated Statistics, Woods Hole, MA
Nikolai Klibanski[2]	Integrated Statistics, Woods Hole, MA
Stephanie Rexing[1]	JHT, Charleston, SC
Melanie Underwood[1,2]	Integrated Statistics, Woods Hole, MA

Volunteers

Mark Burgess[2]	South Dennis, MA
Mary Farrah[2]	Washington, DC
Tamarind Harman[1,2]	Brighton, MI
Rachael Kotkowski[2]	MA Maritime Academy, Buzzards Bay, MA
Keiichi Uchida[1]	Tokyo Univ. of Marine Science and Tech., Japan

[1]6 - 15 February
[2]20 February – 2 March

For further information contact: Russell Brown, National Marine Fisheries Service, Northeast Fisheries Science Center, Woods Hole, Massachusetts 02543-1097. Phone (508) 495-2380; FAX (508) 495-2115; Russell.Brown@noaa.gov. The Resource Survey Report for this survey can be viewed at http://www.nefsc.noaa.gov/esb/Resource_Survey_Reports.htm and the cruise results can be viewed at http://www.nefsc.noaa.gov/esb/survey.htm.

Table 1. Field observations and samples collected for feeding ecology, and age and growth studies on the NOAA Ship ALBATROSS IV, Cruise 07-02 (I-II), Winter Bottom Trawl Survey, during 6 February – 2 March 2007.

Species	Feeding Ecology Observations	Age and Growth Samples
American Plaice	2	-
American Shad	15	-
Atlantic Cod	4	-
Atlantic Croaker	1	1
Atlantic Herring	94	456
Atlantic Mackerel	67	191
Barndoor Skate	73	-
Black Sea Bass	69	213
Blackbelly Rosefish	28	-
Blueback Herring	14	-
Bluefish	2	-
Buckler Dory	15	-
Butterfish	148	-
Clearnose Skate	175	-
Cunner	1	-
Fawn Cusk-eel	110	-
Fluke	265	950
Fourbeard Rockling	2	-
Fourspot Flounder	184	-
Goosefish	143	362
Gulf Stream Flounder	90	-
Haddock	8	-
Little Skate	218	-
Longhorn Sculpin	53	-
Northern Searobin	124	-
Ocean Pout	53	-
Offshore Hake	151	154
Red Hake	97	4
Rosette Skate	80	-
Scup	91	214
Sea Raven	21	-
Silver Hake	185	-
Smooth Dogfish	69	-
Smooth Skate	1	-
Spiny Dogfish	287	811
Spotted Hake	207	-
Striped Bass	2	2
Striped Searobin	39	-
Tautog	2	-
Thorny Skate	1	-
Tilefish	3	-
Weakfish	4	4
White Hake	11	-
Windowpane	184	3
Winter Flounder	39	-
Winter Skate	58	-
Witch Flounder	102	-
Yellowtail Flounder	92	260
Total	3684	3625

Table 2. Miscellaneous scientific collections made on the NOAA SHIP ALBATROSS IV, Cruise 07-02 (I-II), Winter Bottom Trawl Survey, during 6 February – 2 March 2007.

Investigator and Affiliation	Samples Saved	Approximate Number
Andre Buchheister, VIMS, Gloucester Point, VA	Fluke	25 indiv.
	Loligo squid	20 indiv.
Jelle Atema, Boston University, Boston, MA	American lobster	2 indiv.
Peter Chase, NMFS, NEFSC, Woods Hole, MA	Various species, maturity workshop	78 indiv.
Stephen Clifford, Dalhousie University, Nova Scotia	Various species	56 indiv.
John Galbraith, NMFS, NEFSC, Woods Hole, MA	Misc. species	943 indiv.
Heather Haas, NMFS, NEFSC, Woods Hole, MA	Loggerhead turtle	1 exam.
Lei Harris, Fisheries and Oceans, Canada	Barndoor skate	18 indiv.
Dvora Hart, NMFS, NEFSC, Woods Hole, MA	Various species	8 indiv.
Lisa Hendrickson, NMFS, NEFSC, Woods Hole, MA	Loligo squid	204 indiv.
Jeff Hyland, NMFS, Charleston, SC	Various flounder	62 indiv.
Francis Juanes, UMASS Amherst, MA	Offshore hake	55 indiv.
	Silver hake	36 indiv.
Charles Keith, NMFS, NEFSC, Woods Hole, MA	Atlantic hagfish	7 indiv.
Joe Kunkel, UMASS Amherst, MA	Various crustacean carapaces	46 samples
Jason Link & Brian Smith, NMFS, NEFSC, Woods Hole, MA	Preserved stomachs	173 samples
Alicia Long, NMFS, NEFSC, Woods Hole, MA	American lobster	1 indiv.
Sean Lucey, NMFS, NEFSC, Woods Hole, MA	Ripe ovary samples	4 samples
Richard McBride, NMFS, NEFSC, Woods Hole, MA	Various species preserved ovaries	17 samples
Nancy McHugh, NMFS, NEFSC, Woods Hole, MA	Various species	593 indiv.
Henry Milliken, NMFS, NEFSC, Woods Hole, MA	Various species	46 indiv.
Dave Mountain, NMFS, NEFSC, Woods Hole, MA	Various species	119 indiv.
Paul Nitschke, NMFS, NEFSC, Woods Hole, MA	Winter flounder	11 indiv.
Martha Nizinski, NMFS, NEFSC, NSL, Washington, DC	Galatheid crabs	60 indiv.
Loretta O'Brien, NMFS, NEFSC, Woods Hole, MA	Cod	4 exam.
Anne Richards, NMFS, NEFSC, Woods Hole, MA	Goosefish illicium	298 samples
	Goosefish gonad	107 samples
Katherine Sosebee, NMFS, NEFSC, Woods Hole, MA	Various skates	658 exam.
	Various rays	21 exam.
	Spiny dogfish	274 exam.
Michelle Staudinger, UMASS Amherst, MA	Illex squid	998 indiv.
Keiichi Uchida, Tokyo Univ. of Marine Science and Tech., Japan	Conger eel	5 indiv.
Ana Verissimo, VIMS, Gloucester Point, VA	Spiny dogfish	105 indiv.
Susan Wigley, NMFS, NEFSC, Woods Hole, MA	Witch flounder	118 indiv.

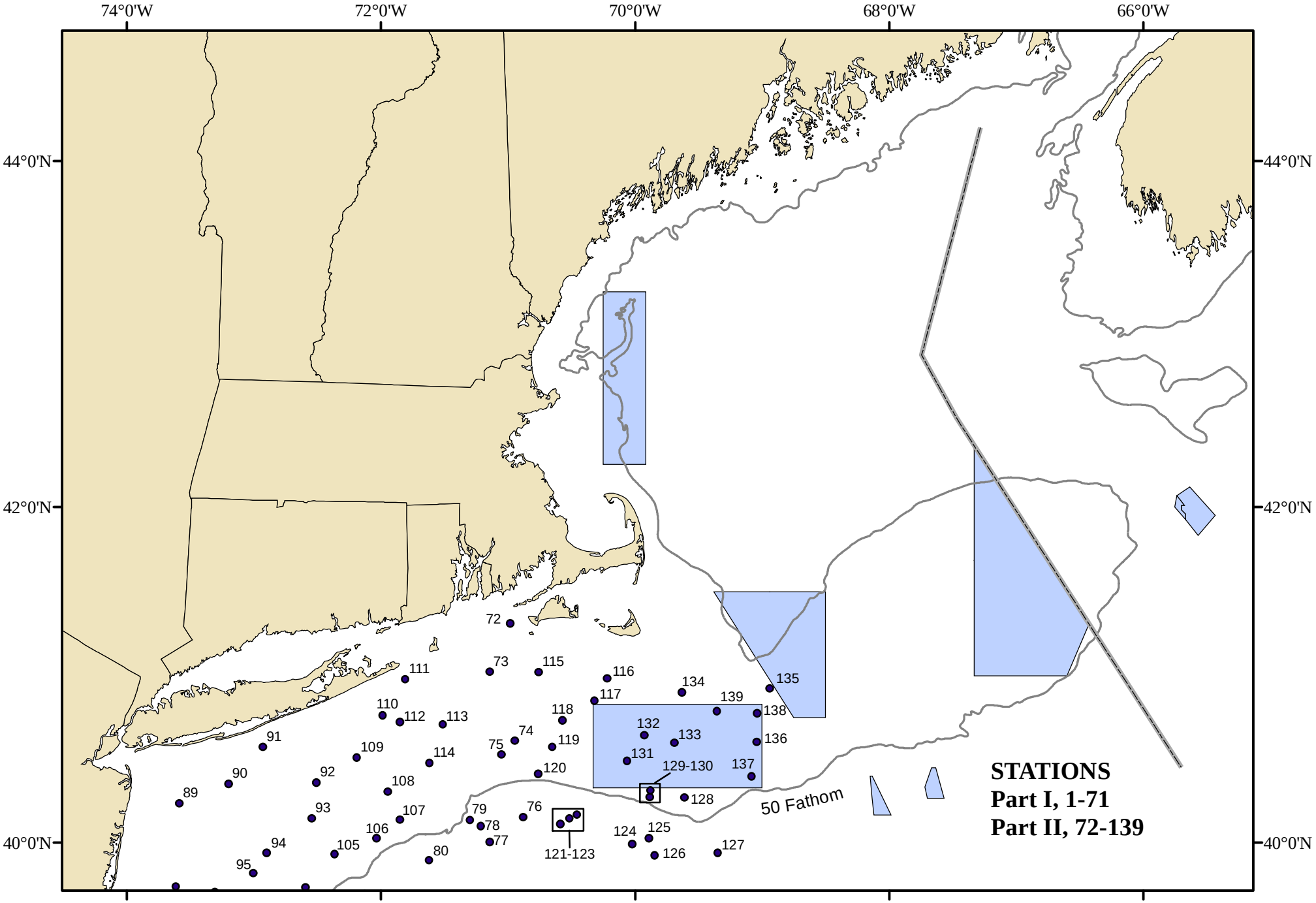
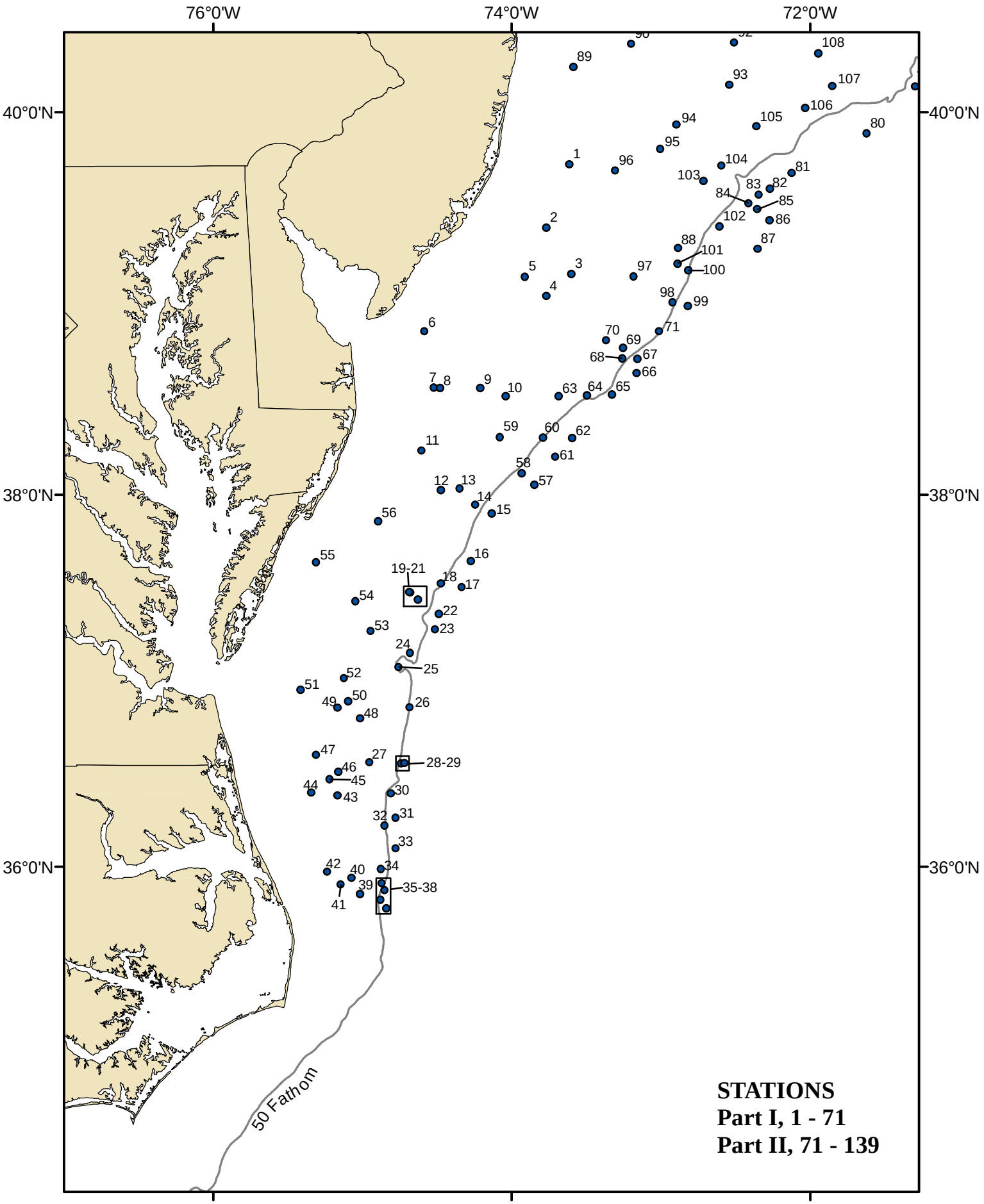


Figure 2. Trawl hauls made from R/V ALBATROSS IV (07 - 02), during NOAA Fisheries Service, Northeast Fisheries Science Center winter bottom trawl survey, February 6 - March 2, 2007.



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